

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

WERNER, Bastian
Syngenta Participations AG
Intellectual Property
P.O. Boxental
CH-4002 Basel
SUISSE

Date of mailing (day/month/year) 20 December 2001 (20.12.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference PGM	
International application No. PCT/EP00/05761	
International filing date (day/month/year) 21 June 2000 (21.06.00)	

1. The following indications appeared on record concerning:		
<input checked="" type="checkbox"/> the applicant	<input checked="" type="checkbox"/> the inventor	<input type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address AMEDEO, Paolo Eimeldingerweg 45 CH-4057 Basel Switzerland	State of Nationality IT	State of Residence CH
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input type="checkbox"/> the name	<input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input checked="" type="checkbox"/> the residence
Name and Address AMEDEO, Paolo Torrey Mesa Research Institute Inc. 3115 Merryfield Row San Diego, CA 92121-1125 United States of America	State of Nationality IT	State of Residence US
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Dominique DELMAS Telephone No.: (41-22) 338.83.38
--	--

PATENT COOPERATION T. _ATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

WERNER, Bastian
Syngenta Participations AG
Intellectual Property
P.O. Box
CH-4002 Basel
SUISSE

Date of mailing (day/month/year) 08 February 2001 (08.02.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference PGM	
International application No. PCT/EP00/05761	International filing date (day/month/year) 21 June 2000 (21.06.00)

1. The following indications appeared on record concerning:		
<input checked="" type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input type="checkbox"/> the agent <input type="checkbox"/> the common representative
Name and Address SYNGENTA PARTICIPATIONS AG CH-4058 Basel Switzerland	State of Nationality CH	State of Residence CH
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input type="checkbox"/> the name	<input checked="" type="checkbox"/> the address <input type="checkbox"/> the nationality <input type="checkbox"/> the residence
Name and Address SYNGENTA PARTICIPATIONS AG Schwarzwaldallee 215 CH-4058 Basel Switzerland	State of Nationality CH	State of Residence CH
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input checked="" type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Anman QIU
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

the 1990s, the number of people in the UK with a long-term condition has increased by 50% (Department of Health 1999). The prevalence of long-term conditions is also increasing in other countries (e.g. Australia, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Sweden, Switzerland, Taiwan, the USA and West Germany) (World Health Organization 1999).

Long-term conditions are a major cause of disability and are a leading cause of death in the UK. The prevalence of long-term conditions is increasing in the UK and in other countries. The prevalence of long-term conditions is also increasing in other countries (e.g. Australia, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Sweden, Switzerland, Taiwan, the USA and West Germany) (World Health Organization 1999).

The prevalence of long-term conditions is increasing in the UK and in other countries. The prevalence of long-term conditions is also increasing in other countries (e.g. Australia, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Sweden, Switzerland, Taiwan, the USA and West Germany) (World Health Organization 1999).

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The prevalence of long-term conditions is increasing in the UK and in other countries. The prevalence of long-term conditions is also increasing in other countries (e.g. Australia, Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Sweden, Switzerland, Taiwan, the USA and West Germany) (World Health Organization 1999).

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

WERNER, Bastian
Syngenta Participations AG
Intellectual Property
P.O. Box
CH-4002 Basel
SUISSE

Date of mailing (day/month/year) 08 February 2001 (08.02.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference PGM	
International application No. PCT/EP00/05761	International filing date (day/month/year) 21 June 2000 (21.06.00)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address BECKER, Konrad Novartis AG Patent and Trademark Dept. Agribusiness Site Rosental CH-4002 Basel Switzerland	State of Nationality	State of Residence
	Telephone No. 41 61 697 91 22	
	Facsimile No. 41 61 697 85 85	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input checked="" type="checkbox"/> the person	<input type="checkbox"/> the name	<input type="checkbox"/> the address
<input type="checkbox"/> the nationality	<input type="checkbox"/> the residence	
Name and Address WERNER, Bastian Syngenta Participations AG Intellectual Property P.O. Box CH-4002 Basel Switzerland	State of Nationality	State of Residence
	Telephone No. 41 61 323 86 51	
	Facsimile No. 41 61 323 50 44	
	Teleprinter No.	
3. Further observations, if necessary: Change of agent.		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input checked="" type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input type="checkbox"/> the elected Offices concerned	
<input type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Anman QIU Telephone No.: (41-22) 338.83.38
--	---

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 15 May 2001 (15.05.01)	
International application No. PCT/EP00/05761	Applicant's or agent's file reference PGM
International filing date (day/month/year) 21 June 2000 (21.06.00)	Priority date (day/month/year) 23 June 1999 (23.06.99)
Applicant HABU, Yoshiki et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 12 January 2001 (12.01.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. Buttay Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

REC'D 22 OCT 2001

WIPO

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference S-31005A	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP00/05761	International filing date (day/month/year) 21/06/2000	Priority date (day/month/year) 23/06/1999
International Patent Classification (IPC) or national classification and IPC C12N15/00		
Applicant SYNGENTA PARTICIPATIONS AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 1 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 12/01/2001	Date of completion of this report 25.10.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel: +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4455	Authorized officer Rutz, B Telephone No. +49 89 2399 7828 

Form PCT/IPEA/409 (cover sheet) (January 1994)



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/05761

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-15 as originally filed

Claims, No.:

9,10 as originally filed

1-8 as received on 08/10/2001 with letter of 05/10/2001

Sequence listing part of the description, pages:

1-30, as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☒ contained in the international application in written form.
- ☒ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP00/05761

- ☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

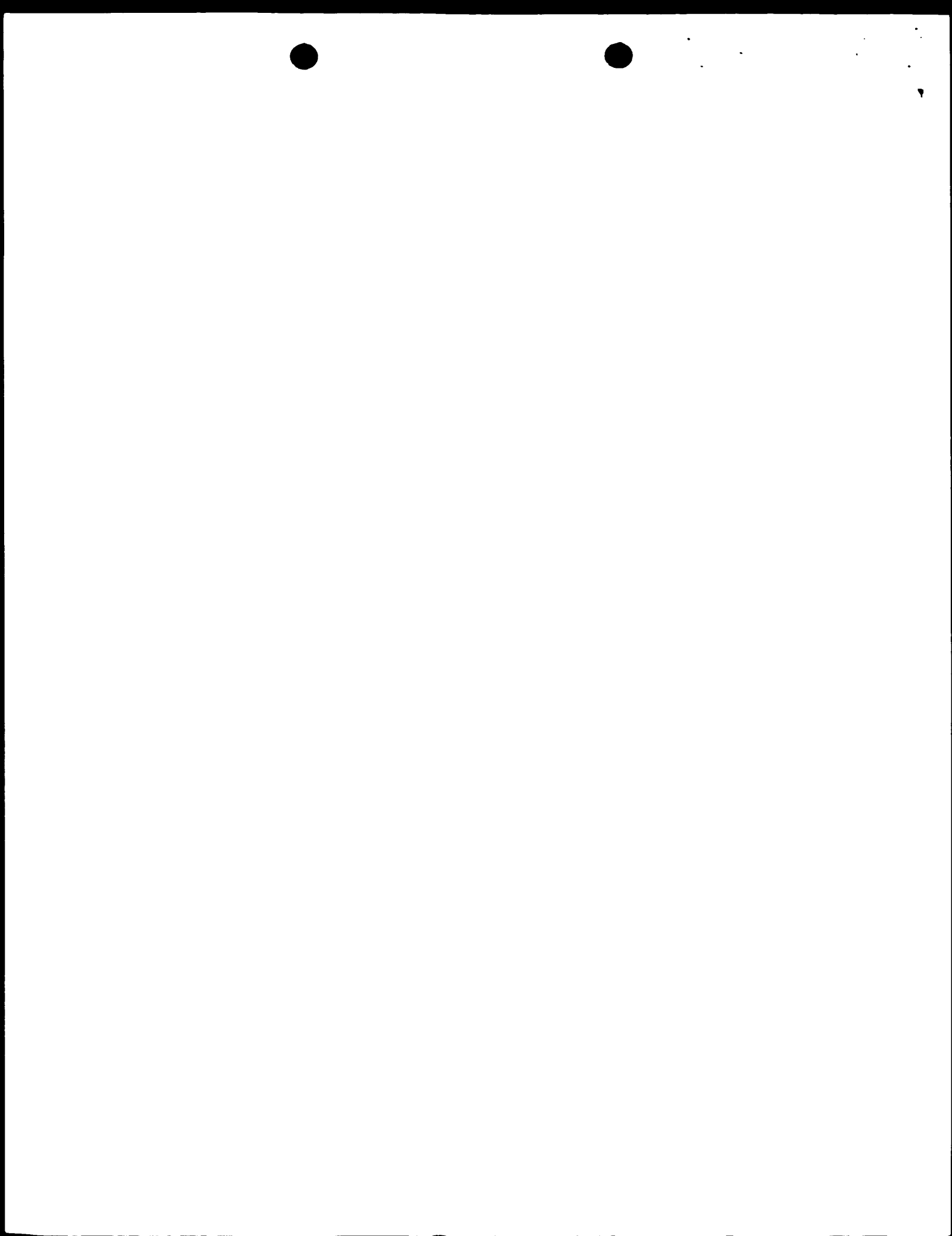
6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-10
	No:	Claims	-
Inventive step (IS)	Yes:	Claims	5, 6
	No:	Claims	1-4, 7-10
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	-

- 2. Citations and explanations**
see separate sheet



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/05761

Re Item V**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: DATABASE EMGSS_PLN2 [Online] EMBL Heidelberg, Germany; AC/ID B20116, 20 September 1997 (1997-09-20) FENG J ET AL.: 'BAC end sequences at ATGC' XP002159060

D2: DATABASE EMGSS_PLN2 [Online] EMBL Heidelberg, Germany; AC/ID B67281, 9 December 1997 (1997-12-09) ROUNSLEY S D ET AL.: 'A BAC end sequence database for identifying minimal overlaps in Arabidopsis genomic sequencing' XP002159061

D7: RICHMOND E. & PETERSON C. L.: 'Functional analysis of the DNA-stimulated ATPase domain of yeast SWI2/SNF2', NUCLEIC ACID RESEARCH, 1996, vol. 24, no. 19, pages 3685 to 3692

1. Subject matter

Present application describes the identification and cloning of an epigenetic silencing factor (Mom1). Mutation or inactivation of said factor is shown to release transcriptional silencing of a marker gene without interfering with the methylation status of the corresponding genomic region.

2. Novelty and inventive step (Art. 33(2)(3) PCT)

2.1. Claim 1 is directed towards a DNA comprising any open reading frame encoding a protein characterized by an amino acid sequence comprising a component of at least 150 amino acids having at least 40% identity with an aligned component sequence of SEQ ID NO:3.

D1 and D2 disclose DNA sequences which encode fragments of amino acid sequence SEQ ID NO:3 of present application. However, D1 and D2 do not comprise an open reading frame which is usually characterized by a START- and a STOP-codon at its ends.

Claims 1-4 are thus considered novel (Art. 33(2) PCT).



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP00/05761

2.2. The subject matter of claim 1 seems not to solve a technical problem over its entire broad scope. While the protein with SEQ ID NO:3 and its encoding cDNA have been studied and functionally characterized in present application no evidence is provided for the function of sequences encoding a stretch of at least 150 amino acids having 40% or more identity with an aligned component sequence of SEQ ID NO:3.

Of course a trivial "technical problem" could still be formulated, namely the provision of an alternative DNA comprising an open reading frame, regardless of its likely useful properties. In light of the prior art the person skilled in the art could select any structurally related sequence to solve above "technical problem". The selection of such compounds, in order to be patentable, must not be arbitrary but must be justified by a hitherto unknown technical effect which is caused by those structural features which distinguish the claimed compounds from the numerous other compounds.

Claims 1 and 2 lack inventive step (Art. 33(3) PCT).

2.3. Similar arguments apply to claim 8 which refers to a protein encoded by the DNA of claim 1 and to claim 9 which refers to a method to produce the DNA of claim 1.

2.4. Claim 3 is directed towards DNA sequences encoding a protein characterized by 150 amino acids having 40% sequence identity with SEQ ID NO:3 and encoding one or more SWI2/SNF2 like ATPase motifs. SWI2/SNF2 like ATPase motifs are known from the prior art (D7). The provision of alternative SWI2/SNF2 like ATPase motifs without a further indication of a hitherto unknown technical effect cannot form the basis for inventive step. Similar arguments apply to the sequence fragments of claim 4.

The description fails to provide evidence which sequences (apart from mom1) falling under the broad scope of claim 1 would upon antisense inactivation release silencing of a marker gene (claim 7). The technical problem addressed in said claim appears therefore not solved.

Claims 3, 4 and 7 lack inventive step (Art. 33(3) PCT).

2.5. Claim 10 is based on the use of oligonucleotides representing 15 or more bases of SEQ ID NO:1 or NO:2. Parts of SEQ ID NO:1 and NO:2 have been disclosed in the prior art (D1, D2). PCR of known sequences as a method to amplify such sequences is routinely used to provide sufficient material for further applications (e.g. sequencing). Since the sequences of D1 and D2 were obtained in a *A. thaliana* genome sequencing project ("BAC ends") it can be reasonably assumed that parts of these sequences have



INTERNATIONAL PRELIMINARY

International application No. PCT/EP00/05761

EXAMINATION REPORT - SEPARATE SHEET

been or were intended to be used in PCR reactions. Claim 10 thus lacks inventive step (Art. 33(3) PCT).

2.6. Dependent claims 5 and 6 appear to be novel and inventive (Art. 33(2) and 33(3) PCT) because their subject matter has neither been disclosed nor made obvious by the prior art.



PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference S-31005A	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/EP 00/ 05761	International filing date (<i>day/month/year</i>) 21/06/2000	(Earliest) Priority Date (<i>day/month/year</i>) 23/06/1999
Applicant NOVARTIS AKTIENGESELLSCHAFT		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.



INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/05761

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/29 C07K14/415 C12Q1/68 C12N15/82

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, CAB Data, MEDLINE, STRAND

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMGSS_PLN2 'Online! EMBL Heidelberg, Germany; AC/ID B20116, 20 September 1997 (1997-09-20) FENG J ET AL.: "BAC end sequences at ATGC" XP002159060 abstract	1,2,9,10
X	DATABASE EMGSS_PLN2 'Online! EMBL Heidelberg, Germany; AC/ID B67281, 9 December 1997 (1997-12-09) ROUNSLEY S D ET AL.: "A BAC end sequence database for identifying minimal overlaps in Arabidopsis genomic sequencing" XP002159061 abstract	1,2,9,10



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *C* document referring to an oral disclosure, use, exhibition or other means
- *F* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *G* document member of the same patent family

Date of the actual completion of the international search

31 January 2001

Date of mailing of the international search report

14/02/2001

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Oderwald, H



INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/05761

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PASZKOWSKI ET AL: "Plant genes: the genetics of epigenetics" CURRENT BIOLOGY,GB,CURRENT SCIENCE,, vol. 8, no. 6, 12 March 1998 (1998-03-12), pages 206-208-R208, XP002114102 ISSN: 0960-9822 the whole document ---	
A	MITTELSTEN-SCHEID ET AL: "Release of epigenetic gene silencing by trans-acting mutations in Arabidopsis" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA,NATIONAL ACADEMY OF SCIENCE. WASHINGTON,US, vol. 95, January 1998 (1998-01), pages 632-637, XP002114098 ISSN: 0027-8424 the whole document ---	
A	WO 98 04725 A (UNIV YALE) 5 February 1998 (1998-02-05) the whole document ---	
P,X	AMEDEO PAOLO ET AL: "Disruption of the plant gene MOM releases transcriptional silencing of methylated genes." NATURE (LONDON), vol. 405, no. 6783, 11 May 2000 (2000-05-11), pages 203-206, XP002159059 ISSN: 0028-0836 the whole document -----	1-10



INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/05761

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9804725 A	05-02-1998	US 6011200 A	04-01-2000
		AU 4048097 A	20-02-1998
		EP 0935666 A	18-08-1999
<hr/>			



INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/13358

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/82 C12N9/10 C12N15/54 C12Q1/68 C12N5/10
A01H5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C12N A01H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	FINNEGAN, E.J.: "THE ROLE OF DNA METHYLATION IN PLANT DEVELOPMENT" EPIGENETIC MECHANISMS OF GENE REGULATION, vol. 32, 1996, COLD SPRING HARBOUR LABORATORY PRESS, pages 127-140, XP002049579 see the whole document	1-10, 18, 19, 21-25, 29-33, 38
X	KAKUTANI, T., ET AL.: "CHARACTERIZATION OF AN ARABIDOPSIS THALIANA DNA HYPOMETHYLATION MUTANT" NUCLEIC ACID RESEARCH, vol. 23, no. 1, 1995, pages 130-137, XP002049118 cited in the application PAGE 130; PAGE 132, RIGHT COLUMN, TABLE 1	1-6, 18, 19, 21, 29, 38

-/--

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/13358

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>VONGS, A., ET AL. : "ARABIDOPSIS THALIANA DNA METHYLATION MUTANTS" SCIENCE, vol. 260, 25 July 1993, pages 1926-1928, XP002049119 cited in the application see the whole document</p> <p>---</p>	1,18,29, 38
A	<p>FINNEGAN, E.J., ET AL. : "ISOLATION AND IDENTIFICATION BY SEQUENCE HOMOLOGY OF A PUTATIVE CYTOSINE METHYLTRANSFERASE FROM ARABIDOPSIS THALIANA" NUCLEIC ACID RESEARCH, vol. 21, no. 10, 1993, pages 2383-2388, XP002049120 cited in the application see the whole document</p> <p>---</p>	1-38
A	<p>WO 96 14414 A (JOHN INNES CENTRE ;COUPLAND GEORGE MICHAEL (GB); PUTTERILL JOANNA) 17 May 1996 see the whole document</p> <p>---</p>	1-38
A	<p>DE 44 44 460 A (INST GENBIOLOGISCHE FORSCHUNG) 30 May 1996 see the whole document</p> <p>---</p>	1-38
P,X	<p>RONEMUS, M.J., ET AL. : "DEMETHYLATION-INDUCED DEVELOPMENTAL PLEIOTROPY IN ARABIDOPSIS" SCIENCE, vol. 273, 2 August 1996, pages 654-657, XP002049121 see figure 3; tables 1,2</p> <p>---</p>	1-10,18, 19, 21-25, 29-33,38
P,X	<p>FINNEGAN, E.J., ET AL. : "REDUCED DNA METHYLATION IN ARABIDOPSIS THALIANA RESULTS IN ABNORMAL PLANT DEVELOPMENT" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE USA, vol. 93, August 1996, pages 8449-8454, XP002049122 PAGE 8451, RIGHT COLUMN; PAGE 8452, RIGHT COLUMN; ABSTRACT</p> <p>---</p>	1,18,19, 29,38
T	<p>RICHARDS, E.J., ET AL. : "DNA METHYLATION AND PLANT DEVELOPMENT" TRENDS IN GENETICS, vol. 13, no. 8, August 1997, pages 319-323, XP002049123 see the whole document</p> <p>-----</p>	1-38

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9614414 A	17-05-96	AU 3809795 A EP 0789765 A	31-05-96 20-08-97
DE 4444460 A	30-05-96	AU 4177096 A WO 9617069 A EP 0797673 A	19-06-96 06-06-96 01-10-97

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(54) Title: GENE INVOLVED IN EPIGENETIC GENE SILENCING

(57) Abstract: The present invention relates to DNA which encodes proteins involved in gene silencing. Related genes encoding proteins characterized by an amino acid sequence comprising a component sequence of at least 150 amino acid residues having 40% or more identity with an aligned component sequence of SEQ ID NO:3 can be isolated from different sources such as mammalian or plant cells. Further disclosed is a method for isolating DNA according to the invention.

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